



**City of Richmond**

**Report to Committee**

**To:** Public Works and Transportation Committee    **Date:** March 4, 2005  
**From:** Robert Gonzalez, P.Eng.    **File:** 10-6000-01/2005-Vol 01  
          Director, Engineering  
**Re:**        **Deferral of Westminster Highway Water Main Replacement**

**Staff Recommendation**

That the approved 2005 water projects on Westminster Highway between No. 3 Road and Shell Road be deferred to 2006.

Robert Gonzalez, P.Eng.  
Director, Engineering  
(4150)

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<b>ROUTED TO:</b>		<b>CONCURRENCE</b>		<b>CONCURRENCE OF GENERAL MANAGER</b>	
Water Services .....		Y	<input checked="" type="checkbox"/>	N	<input type="checkbox"/>
Budgets .....		Y	<input checked="" type="checkbox"/>	N	<input type="checkbox"/>
<b>REVIEWED BY TAG</b>		YES	NO	<b>REVIEWED BY CAO</b>	
		<input checked="" type="checkbox"/>	<input type="checkbox"/>	YES	NO
				<input type="checkbox"/>	<input type="checkbox"/>

## Staff Report

### Origin

In December 2004 Council approved the 2005 Capital Program which included replacement of the existing water mains on Westminster Highway from No. 3 Road to Shell Road. The rationale to justify this expenditure was to replace an ageing system with a new water main. Since that time new information has become available regarding the required water supply to accommodate growth in the City Centre.

### Analysis

The existing asbestos cement water main on Westminster Highway was constructed in 1960 and is at the end of its service life. This water main performs a transmission function as it connects to several water mains providing service to the City Centre area.

Several factors are considered when assessing water main replacement including the possible need to upgrade to a larger size to meet water supply requirements. To this end, Engineering Planning commenced development of a hydraulic model in 2002 in order to provide a basis for determining pipe size for future water main installation projects. This strategy has several positive impacts.

- Water main sizes would not be intuitive but rather would be derived based upon calculations completed through sound hydraulic principles.
- The City will realize the economic value of providing adequate pipe sizes, rather than economic impacts associated with an inadequate pipe size through intuitive pipe replacement.
- The hydraulic model is far reaching as it considers situations several years into the future, various development density strategies and considers capacity issues well beyond the areas immediately adjacent to the water main replacement project.

Staff prepared capital submissions in early 2004 requesting \$1,827,500 to allow replacement of this water main on Westminster Highway. The hydraulic model for this area was not complete at the time when funding was approved by Council. Funding was therefore based upon the past practice of having a grid of 300 mm diameter water mains along arterial roads, which has worked well for Richmond in the past.

Since Council approval of the 2005 Capital Program significant changes have been experienced.

- Through the hydraulic model which is now near completion it has been found that the portion of the main on Westminster Highway between No. 4 Road and Shell requires replacement with a 500 mm diameter main. The capital submission was made on the basis of replacement with the same size as the existing main (300 mm).
- It is expected that the hydraulic model for the rest of this area will be finalized in the next few months. When this is complete, staff will have an opportunity to check the size

adequacy of the main between No. 4 Road and No. 3 Road. It is possible that this main replacement currently planned to be 300 mm is undersized as well.

- Development strategy in concert with RAV Line construction is changing. This may result in higher densities than the current level. Upon completion of the model this information can be used to assess the associated hydraulic impacts.

In addition, it remains standard practice for developers to confirm the adequacy of the water supply for any new development. Based upon the proposed population growth in the City Centre, however, our preliminary assessment using our water model is that some water mains outside of the City Centre will need upgrading as well. As Richmond population grows and concentrates in the City Centre, upgrades to water mains as well as other utilities is no longer intuitive.

Accordingly, staff recommend that the previously approved 2005 capital program for water main replacement work on Westminster Highway be deferred until 2006 in order to finalize the hydraulic analysis and request the necessary funding under the 2006 capital program. Staff anticipate that this analysis will yield a larger water main pipe size requirement and that a revised capital submission for this work will be required.

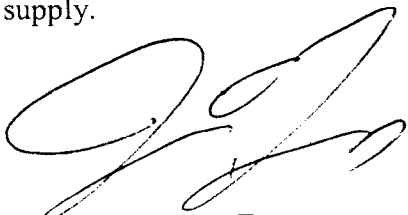
It should also be noted that staff will be preparing an infrastructure status update report in the next few months.

### **Financial Impact**

There is no financial impact at this time. Upon completion of the hydraulic analysis staff will complete the required water main capital submissions reflecting additional costs associated with a possible increased pipe size for Council's consideration in the 2006 capital program.

### **Conclusion**

Deferring the 2005 Westminster Highway work to 2006 will allow staff to complete the required hydraulic analysis and make any adjustments required. Once this analysis is complete staff will be in a position to recommend amendments in the current program to provide an adequate water supply.



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